

CALIFORNIA STATE DEPARTMENT OF PUBLIC HEALTH

WALTER M. DICKIE, M.D., Director

Weekly Bulletin



Medical School
JUL 12 1930
University of California

STATE BOARD OF PUBLIC HEALTH

GEORGE E. EBRIGHT, M.D., President

FRED F. GUNDRUM, M.D., Vice President

A. J. SCOTT, Jr., M.D. ADELAIDE BROWN, M.D. EDWARD F. GLASER, M.D.

ROBERT A. PEERS, M.D.

WALTER M. DICKIE, M.D.

Entered as second-class matter February 21, 1922, at the post office at Sacramento, California, under the Act of August 24, 1912. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917.

Vol. IX, No. 22

July 5, 1930

GUY P. JONES
Editor

The Convalescent Serum Therapy in Poliomyelitis

By K. F. MEYER and B. HOWITT

The recent reports of the State Department of Public Health indicate a sharp rise in the incidence of poliomyelitis throughout California. In the light of previous experiences and on account of the fact that the epidemic trend of this disease started a month sooner than in 1925 and 1927 it is reasonable to anticipate that the number of clinically recognizable cases will markedly increase during the summer months. It is now well known that paralysis is not the only disabling sequel of the infection, but when it involves the muscles of respiration it is responsible for the death of the patient. On the other hand ample evidence has been collected which indicates that with the occurrence of frank cases of the disease there is a widespread development of immunity in the community against this malady in form of abortive cases.

Paralysis, either partial or complete, is the result of injury or destruction of the nerve cells. Treatment must therefore be applied before this injury has taken place or, more specifically expressed: the treatment must be instituted during the preparalytic stage as described by Luther (Boston Med. and Surg. Jour., 1927, Vol. 197, p. 1175). The brilliant studies of Aycock and his associates (Jour. Infect. Dis., 1929, Vol. 45, p. 175) clearly indicate that the virus is not amenable to neutralization by any serum when the poliomyelitis lesions have induced paralysis. An early recognition of the disease in the preparalytic stage is therefore an essential prerequisite in an attempt to prevent or to moderate the serious features of infantile paralysis.

Ever since Netter in 1915 advocated the use of the human convalescent serum as a specific therapeutic agent in poliomyelitis an increasing number of papers attest to the favorable effect of the serum provided it is administered in the preparalytic stage of the disease. Not only is the mortality rate of the treated cases low, but also the average of the total cases of paralysis and the severe grades of paralysis are markedly reduced. The use of the convalescent serum is rational since it is known that an attack of poliomyelitis confers a lasting immunity and the blood serum of persons who have suffered an attack of the disease neutralizes the virus. More recently Fairbrother (1930) and Howitt (unpublished observations) have prepared neutralizing antiserums against the poliomyelitis virus by prolonged immunization of horses, sheep and goats. The sera possess definite neutralizing properties in vitro. Their therapeutic value has not as yet been determined. For the present the physician must therefore depend entirely on the human convalescent serum. Unfortunately, technical difficulties of testing the titer of the serums and insufficient clinical data as to the best method of administration confer to the treatment of poliomyelitis with convalescent serum many uncertainties not inherent in the use of other preparations which have been standardized as to potency of immune substances, dosage and method of administration.

During the 1927 epidemic the George Williams Hooper Foundation for Medical Research, University of California, working with the aid of an endowment

fund for poliomyelitis prepared and distributed 8000 c.c. of convalescent serum. A constant supply to meet the demands in Northern California is kept on hand. However, in view of the present epidemic and since the expense entailed to collect and to distribute serum is heavy and frequently unsatisfactory *it is imperative that each community depend upon its own supply of donors and serum.* The following suggestions may assist the health officials in the organization of an efficient bleeding clinic and serum station.

(1) List of donors should be kept by the health authorities, and should be periodically checked and their addresses kept up to date.

(2) Notices may be inserted in the daily papers asking all persons who had had poliomyelitis formerly and are willing to give some blood to phone the health department or the hospital in which the bleeding clinic has been established.

(3) Donors should be paid at the rate of \$5 for 50 c.c. of blood or less; \$10 for 50 to 100 c.c. and for larger amounts accordingly.

(4) As donors those persons should be chosen who have passed through a frank attack of the disease. Until additional evidence to the contrary is available it is advisable to consider the serum from convalescent persons who were themselves treated with convalescent serum as unsuitable. Furthermore, irrespective of the recent findings of Aycock and others that the normal adult serum may neutralize the virus no certainty exists that a normal adult selected at random may possess such a property.

(5) Blood may be safely drawn after all symptoms of the acute stage have subsided. Serum taken years after an attack still neutralizes the virus and consequently it is reasonable to believe that the property is permanent. Since frequently poliomyelitis donors are not of a robust type the repeated withdrawal of small amounts should be given preference over a large amount of blood at one time.

(6) The apparatus and technic of bleeding the donors are described in an article by Aycock, Luther and Kramer, Jour. Am. Med. Assn., 1929, Vol. 92, pp. 385-388. Special instructions may be obtained from the Hooper Foundation, Second and Parnassus avenues, San Francisco, California.

(7) Each serum should be subjected to a Wassermann and sterility test according to the usual standard procedures. When collected aseptically it may be put up in vials or ampoules without preservatives. If the serum is kept for any length of time the addition of a preservative such as chinisol 3.3 per cent of a 2 per cent aqueous solution or tricresol 0.2 per cent. *Preserved serum should not be used for intrathecal injections.*

(8) For the purpose of investigation of the suspected preparalytic cases and the administration of the serum the health offices should appoint one or two consultants.

(9) The available data are insufficient to determine the best method of administration or the dosage of convalescent serum required to secure the best result. Not infrequently the dosage has been regulated rather by the supply and demand than by any definite information as to its adequacy. Aycock and his associates recommend lumbar puncture and intrathecal administration of 20 c.c. followed by the intravenous injection of 60 c.c. of serum. *The intrathecal injections should never be repeated.* Reactions, such as an increase in the meningeal signs, chill with a sharp rise in temperature, abdominal distress are frequently encountered. In California Shaw, Thelander and Fleischner in 1925 and again Shaw and Thelander in 1928 reported favorably on the intramuscular injection of 50 c.c. of serum in one dose for children under 5 years of age. If the patient is over 5 years, 100 c.c. or more are advocated according to the severity of the symptoms. During the Canadian epidemic 1928-1929 at Manitoba the Medical Research Committee of the University recommended exclusively the *intramuscular injection* of 25 c.c. of convalescent serum as a standard amount. From the reports given the results of the treatment appear very encouraging. *During an epidemic the intramuscular route of administration is considered the simplest and safest method.*

(10) The use of *convalescent serum as a prophylactic* in the event of a severe poliomyelitis epidemic had been suggested in 1928 by Davide in Sweden and by Flexner and Stewart in the United States. Although the available evidence to support the efficacy of this procedure is inconclusive it is recommended that children receive 10 c.c. and adults 20 c.c. of the serum subcutaneously, the injections to be repeated after 4-6 weeks if the epidemic persists.

Ideals are like stars—you will not succeed in touching them with your hands, but like the seafaring man on the desert of water, you choose them as your guides, and, following them, you read your destiny.—*Carl Schurz.*

PHYSICAL DEFECTS IN SCHOOL CHILDREN CORRECTED

A report from the county school nurse at Colusa, Amy M. Dyke, shows that 403 corrections of physical defects were made in the schools of Colusa County during the school year which has just closed. Most of these defects were dental, but a large number were in eyes, ears, tonsils and adenoids.

FEWER LEPERS FOUND IN 1930

During the first five months of this year there were only eight cases of leprosy reported in California. In 1929, 23 cases of this disease were reported, and since 1925 a total of 116 lepers have been discovered in this state. The numbers of cases as reported by years are as follows:

1925 -----	24
1926 -----	19
1927 -----	23
1928 -----	19
1929 -----	23
1930 (to May 1st) -----	8
Total -----	116

Of these 116 lepers, 75 were Mexicans; 10 Filipinos; 7 Hawaiians; 4 Chinese; 2 Porto Ricans; 2 South Sea Islanders; 2 Spaniards; 1 Syrian; 1 Hindu, and 12 natives of the United States. Most of these lepers were transferred to the Federal Leprosarium at Carville, La. It will be noted that almost 65 per cent of the lepers discovered in California since 1925 are Mexicans. In former years, leprosy was found more frequently in Orientals; at the present time, most cases of leprosy that are found in California are in Mexicans.

Leprosy is not endemic in California, as it is in many other states where the presence of the disease has persisted in certain localities among people of blood relation. In other states, like California, having large seaports, cases of leprosy develop among immigrants who have been admitted with the disease in an unrecognized form. It is believed that there are not more than 1200 cases of leprosy in the United States.

More than 300 lepers are now receiving treatment in the Federal Leprosarium at Carville, La. Lepers that may be discovered in California are sent to Carville in May and November of each year.

SEWAGE DISPOSAL PERMIT PENDING

The following application for sewage disposal permit is pending before the State Board of Public Health, final action to be taken at the next meeting of the Board, to be held in San Francisco, August 9, 1930:

Galt, Galt Sanitary District—Application for permit to dispose of sewage, after treatment in an Imhoff tank and oxidizing ponds, into gullies tributary to Cosumnes River.

In nothing do men more nearly approach the gods than in giving health to men.—*Cicero*.

CITY AND COUNTY EXPENDITURES FOR PUBLIC HEALTH

The city and county health departments of California have spent, during the past year, no less than \$3,696,000 in safeguarding the health of their residents. Of this amount, \$173,178 was expended in salaries; \$376,000 was spent for general sanitation; \$326,000 in public health nursing procedures; \$275,000 in child hygiene work; \$140,000 for the maintenance of bacteriological laboratories and \$139,000 for food inspection service. The bulk of the appropriations was expended for administrative purposes and for the control of communicable diseases.

A total of 1687 employees in the various city and county health departments is recorded. Of this number 431 are physicians; 437 public health nurses; 73 food inspectors; 172 sanitary inspectors; 181 milk and meat inspectors; 92 laboratory workers and 201 clerks and stenographers.

The large amount of money expended by the various cities and counties in the maintenance of their public health departments is indicative of the interest in public health that prevails throughout the various communities of this state. The financial support that is given to health departments by the administrative governments of California cities and counties shows that the importance of public health work is recognized.

Don't expect to have health without effort; nothing in this world worth anything can be had without paying for it, and health is the prize of constant struggle.—*Henry Churchill King*.

MORBIDITY ***Diphtheria.**

52 cases of diphtheria have been reported, as follows: Alameda County 1, El Centro 4, Kern County 1, Los Angeles County 2, Glendale 4, Long Beach 1, Los Angeles 21, South Gate 6, Orange County 2, Orange 2, Sacramento 1, San Bernardino 1, San Francisco 1, San Joaquin County 1, South San Francisco 1, San Jose 2, Santa Clara 1,

Scarlet Fever.

66 Cases of scarlet fever have been reported, as follows: Oakland 2, Fresno County 3, Eureka 1, Los Angeles County 2, Glendale 4, Long Beach 2, Los Angeles 14, Tujunga 1, Monterey County 1, King City 1, Anaheim 1, Santa Ana 2, Sacramento 4, Hollister 3, San Diego 1, San Francisco 3, Lodi 1, Stockton 3, San Luis Obispo 1, Daly City 1, Santa Clara County 1, Los Gatos 1, Palo Alto 2, Modesto 1, Turlock 1, Tulare County 1, Yolo County 1, Woodland 2, Marysville 5.

Measles.

924 cases of measles have been reported, as follows: Alameda County 5, Alameda 5, Albany 1, Berkeley 28, Hayward 4, Oakland 32, San Leandro 4, Butte County 16, Contra Costa County 2, Pittsburg 3, Richmond 2, Fresno County 9, Fresno 7, Kern County 3, Bakersfield 1, Taft 1, Los Angeles County 62, Allhambra 10, Avalon 1, Beverly Hills 7, Compton 9, Culver City 2, El Segundo 4, Glendale 10, Huntington Park

* From reports received on June 30th and July 1st, for week ending June 28th.

3, La Verne 3, Long Beach 29, Los Angeles 196, Monrovia 4, Pasadena 16, Pomona 6, Redondo 1, San Fernando 3, Santa Monica 16, Whittier 13, Torrance 4, Lynwood 4, Hawthorne 4, South Gate 11, Monterey Park 2, Maywood 4, Bell 4, Madera County 4, Merced County 1, Orange County 17, Anaheim 3, Brea 1, Fullerton 5, Orange 1, Santa Ana 15, Plumas County 4, Riverside County 8, Corona 4, Riverside 15, Sacramento 11, San Bernardino County 4, Redlands 2, San Bernardino 9, Coronado 4, San Diego 103, San Francisco 27, San Joaquin County 9, Stockton 46, Tracy 16, South San Francisco 1, Santa Barbara County 5, Lompoc 1, Santa Barbara 4, Santa Maria 1, Santa Clara County 10, Palo Alto 7, San Jose 2, Santa Cruz County 1, Benicia 1, Sonoma County 5, Stanislaus County 1, Modesto 1, Corning 7, Tulare County 5, Dinuba 2, Sonora 1, Ventura 2, Yolo County 2, Woodland 5.

Smallpox.

41 cases of smallpox have been reported, as follows: Oakland 1, Contra Costa County 1, Lake County 1, Los Angeles 10, Santa Monica 2, Torrance 1, Maywood 1, Merced 1, Monterey County 1, Roseville 1, Riverside County 3, San Bernardino County 1, San Joaquin County 2, Manteca 2, Stockton 1, San Luis Obispo County 3, Santa Barbara County 1, Santa Barbara 1, Santa Maria 1, Santa Cruz 2, Modesto 1, Patterson 1, Tulare County 2.

Typhoid Fever.

21 cases of typhoid fever have been reported, as follows: El Centro 1, Kern County 2, Los Angeles 1, Riverside County 2, Riverside 4, San Joaquin County 4, Dinuba 2, Tuolumne County 1, California 4.**

Whooping Cough.

136 cases of whooping cough have been reported, as follows: Alameda 2, Oakland 8, Fresno 10, Bakersfield 1, Los Angeles

County 5, Beverly Hills 1, Compton 3, Culver City 1, Glendale 2, Long Beach 6, Los Angeles 36, Montebello 2, Pasadena 5, Santa Monica 2, South Pasadena 6, Whittier 2, Lynwood 2, Maywood 1, Bell 1, Yosemite 1, King City 1, Orange County 3, Santa Ana 1, Laguna Beach 2, Placentia 4, Sacramento County 3, San Bernardino 1, San Diego 14, San Francisco 1, San Luis Obispo County 4, Tulare County 3, Lindsay 1, Yolo County 1.

Meningitis (Epidemic).

3 cases of epidemic meningitis have been reported, as follows: Los Angeles 1, Monterey 1, Sacramento 1.

Leprosy.

2 cases of leprosy have been reported, as follows: San Diego 1, San Francisco 1.

Undulant Fever.

San Bernardino County reported one case of undulant fever.

Actinomycosis.

Los Angeles reported one case of actinomycosis.

Poliomyelitis.

77 cases of poliomyelitis have been reported, as follows: Oakland 1, Fresno County 1, Los Angeles County 10, Beverly Hills 3, Glendale 2, Long Beach 5, Los Angeles 29, Monrovia 2, Pasadena 7, Santa Monica 1, South Gate 1, Orange County 2, Santa Ana 2, Riverside 2, San Bernardino County 1, Redlands 3, San Bernardino 1, San Francisco 2, Santa Barbara County 1, Santa Barbara 1.

** Cases charged to "California" represent patients ill before entering the state or those who contracted their illness traveling about the state throughout the incubation period of the disease. These cases are not chargeable to any one locality.

COMMUNICABLE DISEASE REPORTS

Disease	1930				1929			
	Week ending			Reports for week ending June 28 received by July 1	Week ending			Reports for week ending June 29 received by July 2
	June 7	June 14	June 21		June 8	June 15	June 22	
Actinomycosis.....	0	0	0	1	0	0	0	0
Anthrax.....	0	1	0	0	0	0	0	0
Chickenpox.....	323	274	228	114	496	313	253	251
Coccidioidal Granuloma.....	0	0	1	0	0	0	1	1
Diphtheria.....	60	49	47	52	44	45	59	58
Dysentery (Amoebic).....	1	1	0	1	0	0	0	3
Dysentery (Bacillary).....	2	0	8	10	1	5	0	6
Encephalitis (Epidemic).....	1	1	2	0	1	1	2	1
Erysipelas.....	11	14	10	11	23	10	13	17
Food Poisoning.....	0	8	23	0	0	3	0	0
German Measles.....	19	8	11	4	24	14	13	14
Gonococcus Infection.....	168	119	112	103	91	107	104	93
Hookworm.....	0	0	0	0	0	1	0	0
Influenza.....	21	14	18	26	25	19	22	21
Leprosy.....	0	0	0	2	0	0	0	0
Malaria.....	1	0	0	0	2	2	8	0
Measles.....	2,030	1,580	1,285	924	129	129	195	96
Meningitis (Epidemic).....	6	5	4	3	12	10	12	6
Mumps.....	585	478	343	221	489	382	273	185
Ophthalmia Neonatorum.....	0	0	0	0	0	1	0	2
Paratyphoid Fever.....	0	5	4	1	0	0	0	1
Pellagra.....	0	5	2	4	1	1	1	1
Pneumonia (Lobar).....	48	49	42	30	55	29	49	39
Poliomyelitis.....	33	46	52	77	3	4	5	3
Rabies (Animal).....	20	21	25	23	14	16	8	12
Rocky Mt. Spotted Fever.....	1	0	0	0	3	0	1	0
Scarlet Fever.....	122	118	86	66	458	345	283	185
Smallpox.....	49	38	50	41	30	47	28	18
Syphilis.....	270	163	146	132	118	227	100	100
Tetanus.....	3	0	2	1	2	0	1	0
Trachoma.....	4	0	1	3	0	0	4	0
Trichinosis.....	1	0	0	0	0	0	0	0
Tuberculosis.....	224	209	233	252	239	182	221	153
Tularemia.....	2	0	0	0	0	0	0	1
Typhoid Fever.....	12	26	16	21	9	13	16	11
Undulant Fever.....	3	6	2	1	1	2	0	3
Whooping Cough.....	228	221	253	136	252	195	179	171
Totals.....	4,248	3,459	3,006	2,260	2,522	2,103	1,851	1,452

NEW HEALTH OFFICERS APPOINTED

Dr. Martin J. Lacey has been selected as city health officer of Albany, in Marin County, to succeed Dr. Jack L. Stein.

Dr. S. M. St. John has been appointed as health officer at Belmont, California.